THE DIAGNOSIS AND EARLY TREATMENT OF ACUTE BACKACHE

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Backache is a common condition: almost everyone has suffered from it in some degree at one time or another. Over the last four years I have kept a record of the cases of lumbar backache seen in general practice. The number of patients presenting with lumbar backache in that time was 210, that is, approximately one new patient each week. Of these 210 cases, 131 (60%) were referred for physiotherapy, and I believe that the majority of these were substantially helped by physiotherapy. In 100 patients, 138 episodes of backache have been fully analysed and will be considered in this discussion. The average age of the group was 43.8 years, the oldest 81 and the youngest 13. 64% were males and 36% females.

It is necessary for the physiotherapist to have a clear idea of the causes of backache, the method of differentiating these causes, and, in particular, the appropriate methods to apply to a particular patient. There is much controversy over methods of treating backache, and the present discussion is an attempt to clarify the approach to a patient with a pain in his back by outlining the methods of diagnosis and treatment which I have found useful. These methods have been obtained from many sources, and are leavened by my own experience.

It may be argued that the differentiation of causes and the decision regarding mode of treatment is one for the doctor and not the physiotherapist, but physiotherapists receive many patients with clinical notes no greater than “Backache — for physiotherapy”, so that decisions must be made by them. This is undesirable but an alteration must await greater education and awareness in this field of medicine.

Diagnosis

The causes of an ache in the back are many. A standard work, such as French’s *Index of Differential Diagnosis* lists five main groups of causes.

1. **Spinal**, defined as a term which includes all skeletal structures of the back.

2. **Pyrexial**, associated with the acute fevers such as influenza.

3. **Visceral**, for example, arising from the kidney, as in pyelitis, from chronic pancreatitis, penetrating peptic ulcer, or from pelvic disease in the female.

4. **Nervous**, as a result of sub-arachnoid haemorrhage or meningitis.

5. **Psychological**.

The differentiation into these five groups is usually relatively simple, and is based on the patient’s history, and on general physical examination, with special investigations if indicated.

Difficulty occurs when psychological symptoms are associated with backache, when a diagnosis of hysterical or functional backache is often made. In my experience this is rare as a primary diagnosis, and no true example occurred in the present series. If, however, a patient is mentally unstable and easily gives way under stress, then chronic backache, which is a depressing and disabling condition, can provide such stress, so that we may see a patient with backache, and with an inadequate personality which may overshadow the primary lesion. We must be on our guard against this, because we cannot expect the secondary condition to be cured if we neglect the primary lesion; the patient must be

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treated for both. Often the only psychotherapy needed is mere interest in the patient's condition, thereby supporting his personality, together with a genuine attempt to cure his backache. Obviously the physiotherapist has a part to play in promoting this atmosphere of support and reassurance.

The first step therefore, is to be certain that the patient's trouble resides in his back and there alone.

Classification of Skeletal Backache

I do not intend to enter into a discussion of the aetiology of backache on anatomical and pathological grounds. This is where much of the confusion arises, as argument sways back and forth regarding the relative importance of discs, zygapophyseal joints, ligaments, muscles and nerves in producing symptoms.

I want chiefly to emphasize the great functional complexity of the back, and to indicate how likely it is that several causes contribute to the symptom of backache.

Confusion arises because arguments and theories are based on too few facts. The known facts are as follows:—

1. Intervertebral discs degenerate. This may be seen at autopsy and reliably assumed in the presence of certain radiological appearances. These changes are not always accompanied by symptoms.

2. Sciatica may be due to a displaced portion of an intervertebral disc impinging on nerve roots, and operative removal will usually cure the sciatica.

3. Certain types of backache, chiefly those of sudden onset, are relieved by manipulative procedures, hitherto the province of the osteopath and the chiropractor.

4. Many cases of backache, chiefly those of slower onset, cannot be relieved by manipulation.

5. With progressively deteriorating sciatica there is a typical march of pain from the gluteal area to the leg and into the foot, associated with neurological changes indicating impairment of nerve conduction.

6. Most patients with backache and sciatica will get better in time with no active treatment.

These facts, and a few others, have been used to form the basis of many theories of causation—displaced discs, annulus and nucleus, strained ligaments, myositis, dislocated vertebrae, nipped synovial fringes of zygapophyseal joints, pinched nerves, sacroiliac strain and so on.

It is interesting, and I believe instructive, to formulate a theory of causation in the light of the known anatomy, but at present it must be stressed that it is theory only, and until a sufficient number of unfortunate people succumb to intercurrent disease while suffering from acute backache to enable post-mortem findings to confirm the theory, it should be kept in its correct perspective.

We have too little direct information to base our classification of skeletal backache on pathology, even though this is eventually desirable. The interim classification and the management of backache must be based on clinical findings, and it is only by the study of these clinical findings and the definition of clinical syndromes that order can eventually come from the chaos that exists at present. I shall now define some clinical syndromes of acute lumbar backache, and indicate which methods of treatment give best results in each syndrome.

We shall assume that after a general history and examination, it has been decided that the patient is suffering from skeletal backache, and that examination and X-rays have excluded serious bone disease.

History

Lumbar backache has been divided into those of sudden onset and those of slow onset (Cyriax, 1953). This is a very useful distinction, and forms the basis of diagnosis and treatment, but in the present series it was found necessary to classify the history into one of 4 categories.
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Nature of Episodes

<table>
<thead>
<tr>
<th>Nature of Episodes</th>
<th>No.</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>1. Sudden onset, previously quite free</td>
<td>60</td>
<td>43%</td>
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<tr>
<td>2. Sudden onset, after a previous mild ache</td>
<td>8</td>
<td>6%</td>
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<tr>
<td>3. Mild, sudden pain, then gradually worsening pain after an interval of freedom</td>
<td>8</td>
<td>6%</td>
</tr>
<tr>
<td>4. Gradual onset with no sudden exacerbations</td>
<td>62</td>
<td>45%</td>
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The relationship of age to type of onset showed no significant difference in the various groups, but the sex distribution showed that males were much more prone to the sudden onset; 75% of this group were males, while in the slow onset group the sex distribution was 52% males, 48% females.

The patient may resent extensive history taking by the physiotherapist, but the answers to seven questions must be known.

1. How did you hurt your back?
2. Did the pain come on suddenly or gradually?
3. Where is the pain?
4. Does the pain go down the leg?
5. Have you any numbness or tingling in the leg?
6. Is it worse or better when you stand up and walk about for a while?
7. Have you had it before?

The history must include the exact site and mode of onset of the pain, as it is by the alteration of pain that progress is assessed. We must also know whether the patient is suited to manipulation, and what manipulation to use.

It is important to enquire carefully into the exact movement which caused the pain, and the posture at the time the pain came on. There is some evidence (Crisp, 1960) which suggests that slight strain, particularly rotation in flexion, as in stooping to pick up an object in passing, may cause a different lesion from a strain which is heavier and on the unrotated back. Possibly the slight strain causes a lesion of the zygapophyseal joints and the heavier, direct pressure may cause a split in the disc annulus. My impression is that the former type responds more quickly to manipulation and has a lot less after pain, but the number of cases I have been able to analyse is not yet great enough to enable me to draw firm conclusions.

A typical history of sudden onset is that of the 54-year-old man who presented in May, 1960, having had previous episodes in September, 1954, and October, 1957. He described how, while gardening, he caught his hoe in a root, his back “cracked” and a pain shot right up his back. Next day he complained of a nagging ache across the low back. His past history was typical. He had had pain in his back off and on for about 30 years. It was often brought on by a sudden jerk, and he thought he had some trouble from it about once a year.

This man is of interest as he illustrates the help that can be given by physiotherapy after such an episode. In 1954, he was treated by rest in bed for four days, hot water bottles, and codein. He was not free of pain in a week and was off work for 11 days. In 1957, he was treated by short wave diathermy and manipulations and was off work for seven days. In 1960, after similar treatment, he was at work again in seven days, free of pain in two days.

Examination

The examination consists of three parts:—

A. With the patient standing in a good light, look for scoliosis or kyphosis. Check leg length by noting the height of the anterior and posterior iliac spines, with the weight evenly distributed on each foot. Note the presence of muscle spasm. Check the range of movement in forward flexion, lateral flexion and extension, noting any deviation or pain.

B. With the patient supine, look for muscle wasting in the legs. Check the range of hip movement and of straight leg raising. Note the presence of Lasègue’s sign (dorsiflexion of the foot at the maximum range of straight leg raising). Test for knee and ankle jerk, and the power of the muscles at the ankle joint. Test for loss of sensation (usually a pinprick is sufficient).
C. With the patient prone, palpate for spasm of muscles, tender spots, prominences and irregularities of the spine, and for tenderness of the sacro-iliac joints. The ankle jerk and loss of sensation may also be tested in this position.

**Manipulation**

A number of diagnostic manipulations are performed as, at present, this is the only reliable way of deciding whether a case is suitable for manipulative treatment or not.

The principles of manipulation to be borne in mind are:

1. Manipulations are performed without anaesthesia.
2. After each manipulation the range of movements, previously limited, are assessed. These principles have been emphasized by Cyriax (1953).

The manipulations performed are in three main groups.

**Lateral Torsion**

To assess the torsion range to right and left. Sometimes this is of therapeutic value. In ten cases out of 60 it afforded significant relief.

**Abt’s Manoeuvre**

This is a procedure described by J. J. Keegan (1944) and attributed to A. W. Abt, although apparently it had been described by D. S. Troedsson in 1937.

Keegan describes the manoeuvre as follows:

“The first manoeuvre is to flex the leg acutely on the thigh and the thigh on the abdomen, at first cautiously a few times on the least affected side then more suddenly and forcibly. The second manoeuvre is forceful full extension of the leg by a combined kick of the patient and pull with the operator’s hand on the ankle. This procedure then is repeated on the more affected side, repeating one to ten times as seems needed by report of relief by the patient.”

It is obvious that this manoeuvre will exert a sudden pull on the spinal joints and muscles, and will also widen the intervertebral space, so that, according to your belief, it can reduce a displaced disc, replace a displaced bone, or extract a nipped synovial fringe from the zygapophyseal joints. The important fact is that it works.

In 56 of the 60 episodes of backache of sudden onset, a good Abt’s manoeuvre afforded immediate improvement in symptoms and signs. In the group of sudden onset, after mild ache, it helped six out of eight. In the group of gradual worsening after sudden pain, it helped two out of eight.

There are several points in technique which should be mentioned:

1. The patient should be lying comfortably on a full-length firm couch at the height of the operator’s waist.
2. His head should be comfortably supported so that the back muscles are relaxed.
3. His arms should be across the chest, so that the patient cannot grab the sides of the couch and tense his muscles.
4. The kick should be low, with the heel aimed at the level of a hand held just above the couch. It is a kick with the heel, the major effort being to straighten the knee, the operator pulling on the leg at the moment the knee straightens.
5. Several trial kicks should be done first before the operator takes hold of the foot. This aids relaxation and induces confidence. Sometimes a sudden pain is felt in the back as the manoeuvre is performed, and this is usually indicative that a good result can be expected.

**Direct pressure on lumbar spines**

I have not used this technique extensively, but have occasionally had a very good result with it, particularly in patients in whom hyperextension causes a “catch” in the back.

It should be emphasized that there are many methods of achieving the same result, and that the different methods are merely
techniques of manipulation. The operator should, therefore, use the method of manipulation which he finds easiest and most effective. The most important thing is to manipulate.

In most backaches of sudden onset, something has been displaced mechanically, by trauma, and if it is replaced, improvement immediately begins. The pain and surrounding swelling will begin to subside as soon as reduction is effected. Manipulation should be performed as soon as possible. Reduction of the lesion will take place spontaneously in a number of cases with rest alone; in other cases, after two or three weeks, the back "just doesn't feel right". After manipulation, full freedom usually returns in four to seven days.

There are several points to be borne in mind. The effectiveness of the manipulations can be assessed only by the patient's progress. Manipulations may be done more than once, or on several successive days. Reduction may be incomplete initially, and in any case, it is made easier after several days by relaxation of muscle spasm. It is logical to attempt to relax muscle spasm by short wave diathermy and massage before manipulation, and to repeat this treatment after it for comfort. Strapping can be applied to the lumbar region in order to limit flexion for a few days, but the patient must be shown how to keep his lumbar spine in extension, instructed in the correct method of squatting to pick things up, told to lie on a firm surface or to stand and to avoid sitting. If he must sit, he should place a cushion behind the lumbar region.

Other Forms of Treatment

Indications for injection of local anaesthetic with or without hydrocortisone. This is widely practised and an attempt has been made to evaluate the procedure. Injection of local anaesthetic and hydrocortisone into tender spots in the gluteal region was performed on 28 patients in a series of 100. Of these, 20 obtained improvement, four were unaffected and four were worse. The latter two groups were those in whom backache was recent and of sudden onset, and who eventually required traction in recumbency. Presumably by removing protective pain and spasm by early injection, the lesion is allowed to progress.

Those who were improved were in two groups. The first group had suffered sudden onset of pain, most of the pain had disappeared and the back movements were fairly free, but a painful, tender spot remained.

This spot was permanently removed by infiltrating with local anaesthetic. (Local anaesthetic alone was as effective as when used with hydrocortisone.)

The second group consisted of five female patients, who dated their backaches from a pregnancy. They were relieved quickly and permanently by injection of local anaesthetic plus hydrocortisone into the tender spot, which in each case was over the sacro-iliac joint. Local anaesthetic alone was not as effective. Presumably this was true sacro-iliac strain, related to the relaxation of the ligaments of this joint which takes place during pregnancy.

Correction of Posture. All components of posture were not assessed during the series, but one aspect, the influence of inequality of leg length, was investigated. Six patients presented with unequal leg length with consequent compensatory scoliosis. The use of a built-up shoe in each case resulted in relief from pain in about a week, in one case three weeks. Physiotherapy to strengthen and equalise back muscles is of use after the inequality has been corrected.

The association of backache with arthritis elsewhere in the body. 14% of patients complaining of backache sought treatment for arthritis of the rheumatoid type elsewhere in the body.

The general level of arthritis in the population is high, but it is of interest that of this 14%, only 4% were associated with backache of acute onset, while 10% were associated with backache of gradual onset, that is, about 20% of gradual onset backache was associated with rheumatic changes elsewhere in the body. Their history was of pain which
was bad in the mornings but which gradually lessened during the day, as with a rheumatic joint anywhere in the body. There is no reason why zygapophyseal joints should not undergo rheumatic changes as frequently as any other. These changes have been demonstrated at post mortem, and evidence of damage and of subsequent osteoarthritis can be seen on X-ray. There is a place for short wave diathermy to the site of pain in this group of cases, and for the use of antirheumatic drugs.

Loss of Working Time

Analysis of the data for loss of pain and time off from work in the four clinical groups described gave the following results: Cases of sudden onset took an average of 3.5 days for relief of pain, ranging from immediate relief to 14 days. They were off work an average time of 9 days; about 15% did not need time off, while the longest was 28 days. Those of gradual onset took an average time of 13.3 days for relief of pain. Some in this group were excluded because they still complained of pain after a year. The average time off work was 37.4 days, about 60% did not need time off work at all.

When there was sudden exacerbation after gradual onset, pain was experienced for 5.5 days; the average time off work was 7.5 days. In the small group of gradual onset after a sudden previous pain, the numbers were too small and the range too wide to warrant calculation of means.

Summary

In patients whose backache is of sudden origin, diagnostic manipulation should be performed as part of the examination. If certain manipulations are helpful in relieving pain, then these should be continued as part of the treatment.

It is of the utmost importance that the manipulations should be performed as early as possible.

Methods of examination and manipulation have been described.

Short wave diathermy and massage are helpful before and after therapeutic manipulation.

The patient should be advised to rest on a firm bed between treatments.

The average time for relief of pain is 3.5 days; a reasonable average time to enforce absolute rest is 5 days. The average time off work is 9 days, so the patient should be warned initially that he will need treatment for about a fortnight.

References


